Issue 11
November 2017

Utah Valley Amateur Radio Club

The UVARC Shack

Welcome new hams!

Just when we thought things were starting to slow down ahead of winter, a flurry of people have decided to take the plunge and get licensed, including our own Kiara Johnson. Congratulations to

all, and welcome to the hobby! We trust you'll look ahead to years, if not decades, of fun and fellowship, both on and off the air. At the same time, a fair number of you have also upgraded your licenses, and we congratulate you too!

We're here to serve you, to help you come up to speed, and to give you an amateur place you can call home. You'll find a lot of ham radio resources at your fingertips or among local friends. While we'd like to offer our time and camaraderie to our numerous membership, it's going to be up to *you* to reach out to *us* when you have questions or radio issues, because we're not all that great at reading minds.

Last, but not least, thanks to the many who have donated generously to our ***Utah Food and Care Coalition*** drive. We've already delivered food and checks from you to a grateful community, and look forward to more.

This month in the *UVARC Shack*

Welcome to a brand new army of hams, and thanks for your donations. Say hello to W7SSM, and let's build an antenna launcher, and discuss why one would get amateur radio license plates. Brass Tacks unravels part of the mystery behind digital radio.

Dear Annette answers a question about playing background music while you're transmitting, and another about protecting your car's paint job from mag-mount scratches.

Please send your ideas, stories, updates, photos, questions, gripes, and breaking news to ***uvarcshack@gmail.com***

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Santa Claus

He's coming to town...three times

Seen driving in

Hate to break it to you, but Santa doesn't really drive a sleigh, as you can see from this eyewitness photo.

After some wheeling and dealing, our little club has managed to finagle Santa into returning to Utah ahead of the big night, and spread his jolly laughter and Christmas cheer once again. So, he said he'll make the trip, in the interest of all the little kids and grandkids that we told him about.

UVARC Christmas Potluck Dinner

First up is our annual Christmas potluck dinner, on Thursday December 7, at the Orem Friendship Center, 53 N 400 E, starting 6:30 pm. Santa told us he'd heard about all the good food we had last time, and plans to taste our delicious creations this year for himself. So, let's put last year to shame by showing Santa that we know how to food it up. He also said he'll make himself available for awhile, to take photos with you.

Third Annual 76'ers Santa Net

Next is our annual 76'ers Santa Net — twice! Santa said he wants to talk to as many little ones who can get on the radio as their parents will allow, and hear their wishes for Christmas. In fact, he said he'll do it twice, once on Saturday December 23 at 7:00 pm, and again the next night, Sunday December 24 at the same time. He plans to take check-ins and wishes both nights on the 146.760 MHz repeater, so get your radios ready, and invite your kids to join in third-party.

My Shack

Highlighting the shack (ham equipment and room) of a member, to give others an idea of what more experienced hams have set up

Stephen Moss, W7SSM

I grew up with an Electrical Engineer father and followed in his footsteps graduating with an MSEE from BYU. When I was in school I never got the chance to study antennas since the class just wasn't offered often enough. Most of my focus was on signal processing and I ended up working for Hughes Aircraft for almost a decade on radar systems.

While working at Hughes I bought a handheld scanner to listen to flight chatter. At the time I lived in the California desert and did test flight support for the radars at China Lake Naval Weapons Center. During this time my dear wife passed away, and about a year later I moved to Utah with my two very small children and have been here ever since. They are both still here, well behaved, and pleasant to have around.

A few years back I got interested in ham radio and decided to take the test. I studied and went to the Law School at BYU and passed the Technician exam on the first try. Then I studied up, went back, and passed the General and the Extra exams on the same day. I had a Baofeng HT that I played with, then bought my Yaesu FT-2900 and a mobile Baofeng (for 70cm). It took me a while and lots of advice from some of the UVARC members (Carl!) I got a couple of Pockrus J-Poles and installed them on my home (note the picture, took down the satellite TV dish and put up the J-Pole...not a bad trade!). My son works in a cabinet shop and whipped up a nice box for the two radios and a 30A Chinese power supply (I am a very frugal man), and before long, my 1 cubic foot 'shack' was working quite nicely.

I love to get on and participate in the Nets when I can, but I work too much. I love my work designing and supporting the install and operation of the networks at BYU, particularly the wireless network. A life of many variations on electromagnetic waves.

I've included a photo of what was my favorite part of the eclipse — the projection of many tiny images of the sun on a sidewalk through the leaves of a tree. Those are just more electromagnetic waves.

— 73, W7SSM

Brass Tacks

An in-depth look at a radio-related topic

Digital radio

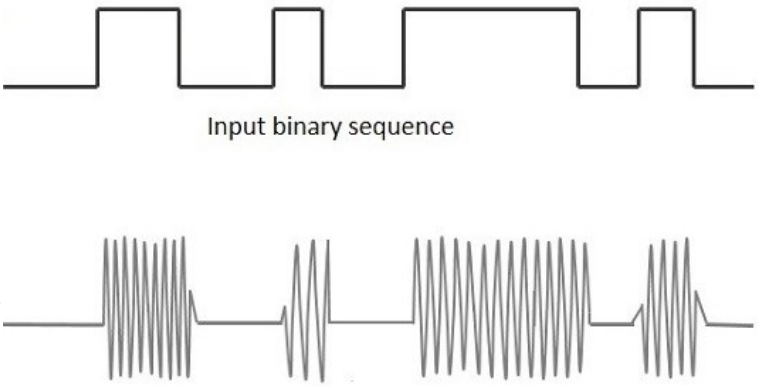
There's been quite a lot of talk recently about digital radio and digital modes, and rightly so. It's no longer a thing of the future, but a technology of the now, so I thought it only appropriate to talk a little about it, and maybe even unmask some of its mystery. Digital radio is a ***huge*** topic that covers a ***broad*** discipline within amateur radio. Just so you and I are on the same page, however, let's distinguish between three areas of thought on what we mean by ***digital*** as it relates to radio: internal circuitry, data protocols, and digital signal.

Most modern transceivers use embedded digital circuitry (think AND gates and ADCs and processors) deep inside their guts, to filter signals, to enhance modulation / de-modulation, and to move data around. This internal digital processing is extremely important today, and differences between chipsets, digital logic, and features are often what distinguishes quality radios from cheaper units, but ***the internal digital circuitry isn't what we're addressing here.***

There are also many ways to digitally encode (not encrypt, which is prohibited) the data that eventually gets transmitted, highlighting features such as data compression, weak signal detection, and error detection / correction. These are known as data protocols (such as JT65, FT8, MFSK, PSK31, etc.), but ***also not the topic of discussion in this article.***

What we're talking about is ***the stream of ones and zeroes that are actually being transmitted through your antenna.*** Let's take a look. It seems like the best way to describe what a digital signal looks like is to show it both in AM and in FM, since those are the fundamental modulation methods (most *basic* modulation methods, such as SSB and C4FM, are derivatives of these two) for transmitting digital signals, and then introduce PSK. Furthermore, it's probably best to view them as a **waveform** in the time domain, since in the frequency domain digital signals and analog signals appear nearly identical.

ASK



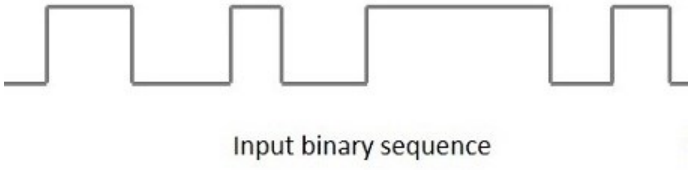
The simplest waveform to examine is ASK, or *amplitude-shift keying*, which is nothing more than a steady hum at a single high frequency (the **carrier wave**), except that the signal strength (**amplitude**) of the wave is either strong (for a digital **"1"**) or weak (for a digital **"0"**). The simplest form of ASK is called OOK, or *on-off keying* (shown here), in which the signal is either present (digital **"1"**) or absent (digital **"0"**), and is in fact what's being sent in CW operation. This means that ***digital radio communication is actually amateur radio's first modulation method***, preceding analog radio by decades. CW, or *continuous-wave*, is a **mode** that involves sending Morse code in OOK, using short digital ones (dots), long digital ones (dashes), and digital zeroes (spaces). ASK requires little bandwidth as a result of using a single frequency.

Brass Tacks

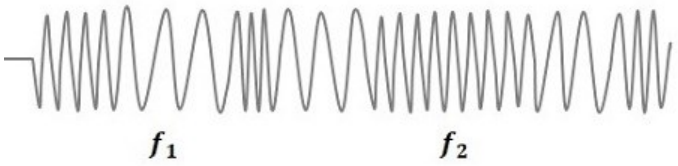
continued

FSK

Another way of representing a stream of digital ones and zeroes is FSK, or *frequency-shift keying*, which is done by sending the carrier signal at a constant amplitude, but at two different frequencies, one for a digital **"1"** and the other for a digital **"0"**. (*NRZ* is often used, in which the *transition* from one frequency to the other switches from a digital **"0"** to digital **"1"**) Because FSK uses more than one frequency, it requires more bandwidth than does ASK, but can carry more information in a shorter amount of time than can be done with ASK.



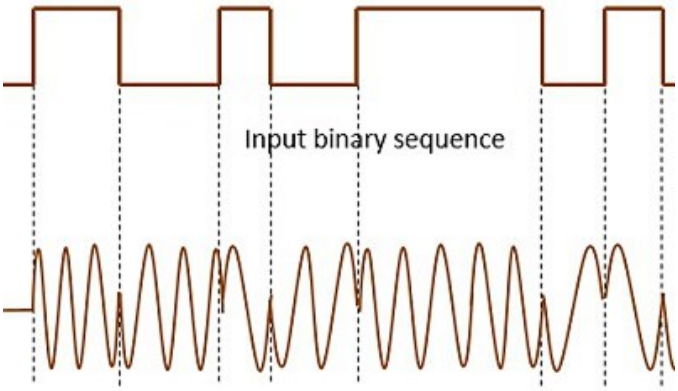
Input binary sequence



FSK Modulated output wave

PSK

A third method of sending digital radio is PSK, or *phase-shift keying*, whose waveform appears similar to the constant-amplitude FSK, except that it uses a single carrier signal, but shifted by an angle (digital **"1"**) or not shifted (digital **"0"**). The simplest form of PSK is BPSK, or *binary phase-shift keying* (shown here), in which the shift is by 180°, and can easily be accomplished by **inverting** the signal (digital "**1**") or not (digital "**0**"). (PSK also uses *NRZ*.)



PSK Modulated output wave

Putting it all together

Digital radio is nothing more than the sending of ones and zeroes over radio waves. Yet there are various ways to accomplish this, and more than what was described in this article, but these three are the most fundamental. So, how does one send and receive these digital signals? Well, that often requires special hardware or even special software that can form these ones and zeroes before sending and receiving them through your antenna, and is a feature that's built in to some of today's transceivers, but a topic for another day.

— Noji Ratzlaff, KNØJI (kn0ji@arrl.net)

Dear Annette

What's on your mind? Serious, humorous, technical, and thoughtful answers to your deepest, (mostly) ham-related questions.

Dear Annette:

Do you do HF? I keep hearing about YLs who draw pileups when people hear their female voices. Does that happen to you?

Sleepless in Salem

Dear Sleepless:

Can you imagine the effect of parking an ice cream truck at the curb of an elementary school during recess? I do indeed work HF (high-frequency bands) occasionally, especially during big contests. And yes, it's true that as a YL (*young lady*, or more accurately, female ham) my feminine voice will sometimes attract extra attention from lonely or older male hams, and even a few pileups when I call CQ.

Dear Annette:

Do I need to turn off my background music when I'm transmitting? In other words, if I happen to leave my MP3 or my favorite FM station playing in the background, and I key up, is that an illegal transmission?

Mobile in Orem

Dear Mobile:

According to the applicable Part 97 (section 113c) rules, we are not allowed to transmit music of any kind, even *incidental* music, except in conjunction with a manned spacecraft communication, and that only by permission from NASA. So yes, to be compliant, you do need to turn off your music before you press your PTT.

Dear Annette:

How can I protect my car's paint from getting scratched up by my mag-mount antenna? As I'm driving around, the mag-mount seems to move just a bit here and there, and that scratches up the paint where it sticks to my car. Any suggestions?

Sam in Orem

Dear Sam:

Generally I suggest three things to prevent scratches made by a magnetic mount on a metal car body: get a stronger magnet, place something thin under your mag-mount, or consider a different mount, like a trunk lip mount. You can place a sticky mat or a thin piece of wax paper under the magnet base. You can also find magnetic bases made of rubber or other non-scratch materials. Just keep in mind that the thicker the material you use, the lower the much-needed capacitive coupling between the antenna ground and the car body. But if you leave it on long enough, nothing will completely prevent scratching your pretty paint job, so you might just as well get it over with, and drill away.

Dear Annette:

You and others have mentioned ham radio contests here and there. So, what do people actually win in a ham radio contest? Money? A new radio or antenna? I guess I don't get it.

Macin in Santaquin

Dear Macin:

Most hams don't engage in *contesting* to win anything, but for the HF experience. Yet each top winner does receive a trophy, a plaque, or an honorable mention. And you're right: if you don't participate, you won't get it!

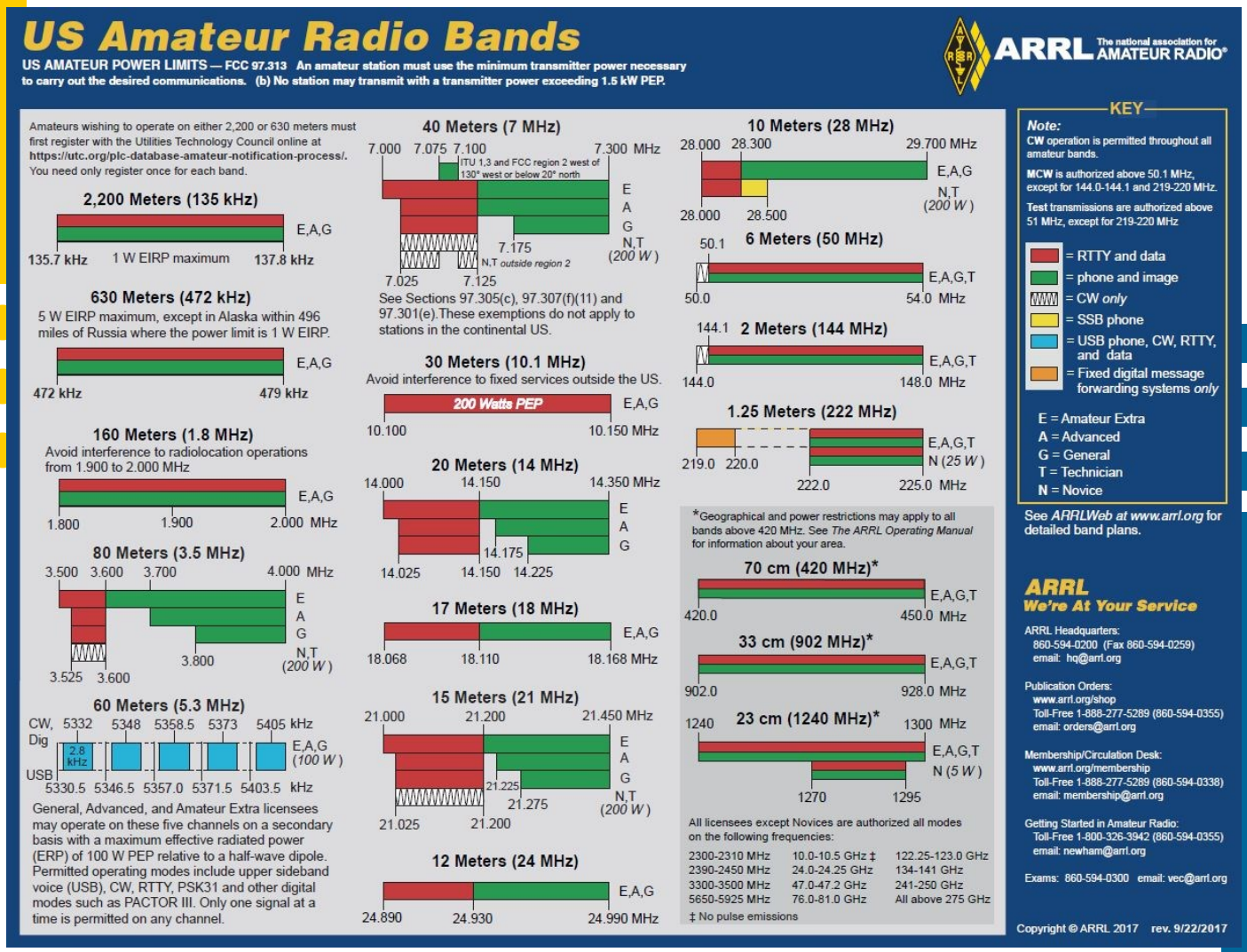
Got a question for Dear Annette*? Send your email to* ***uvarcshack@gmail.com*** *and include your town.*

ARRL News

The latest from the Mother Ship

ARRL releases its updated band allocation chart

As you can see from the recently released graphical band allocation chart, there is little change from the 2012 chart, that actually affects the average radio amateur.


US Amateur Radio Bands
US AMATEUR POWER LIMITS — FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.
ARRL The national association for AMATEUR RADIO
Amateurs wishing to operate on either 2,200 or 630 meters must first register with the Utilities Technology Council online at https://utc.org/plc-database-amateur-notification-process/. You need only register once for each band.
2,200 Meters (135 kHz)
E,A,G
135.7 kHz
1 W EIRP maximum
137.8 kHz
630 Meters (472 kHz)
5 W EIRP maximum, except in Alaska within 496 miles of Russia where the power limit is 1 W EIRP.
E,A,G
472 kHz
479 kHz
160 Meters (1.8 MHz)
Avoid interference to radiolocation operations from 1.900 to 2.000 MHz
E,A,G
1.800
1.900
2.000 MHz
80 Meters (3.5 MHz)
3.500 3.600 3.700 4.000 MHz
E
A
G
N,T
(200 W)
3.525 3.600
3.800
60 Meters (5.3 MHz)
CW, Dig 5332 5348 5358.5 5373 5405 kHz
2.8 kHz
E,A,G (100 W)
USB 5330.5 5346.5 5357.0 5371.5 5403.5 kHz
General, Advanced, and Amateur Extra licensees may operate on these five channels on a secondary basis with a maximum effective radiated power (ERP) of 100 W PEP relative to a half-wave dipole. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31 and other digital modes such as PACTOR III. Only one signal at a time is permitted on any channel.
40 Meters (7 MHz)
7.000 7.075 7.100 7.300 MHz
ITU 1,3 and FCC region 2 west of 130° west or below 20° north
E
A
G
N,T
(200 W)
7.175
N,T outside region 2
7.025
7.125
See Sections 97.305(c), 97.307(f)(11) and 97.301(e).These exemptions do not apply to stations in the continental US.
30 Meters (10.1 MHz)
Avoid interference to fixed services outside the US.
200 Watts PEP
E,A,G
10.100
10.150 MHz
20 Meters (14 MHz)
14.000 14.150 14.350 MHz
E
A
G
14.175
14.025 14.150 14.225
17 Meters (18 MHz)
E,A,G
18.068 18.110 18.168 MHz
15 Meters (21 MHz)
21.000 21.200 21.450 MHz
E
A
G
N,T
(200 W)
21.225
21.275
21.025 21.200
12 Meters (24 MHz)
E,A,G
24.890 24.930 24.990 MHz
10 Meters (28 MHz)
28.000 28.300 29.700 MHz
E,A,G
N,T
(200 W)
28.000 28.500
6 Meters (50 MHz)
50.1
E,A,G,T
50.0 54.0 MHz
2 Meters (144 MHz)
144.1
E,A,G,T
144.0 148.0 MHz
1.25 Meters (222 MHz)
E,A,G,T
N (25 W)
219.0 220.0 222.0 225.0 MHz
*Geographical and power restrictions may apply to all bands above 420 MHz. See The ARRL Operating Manual for information about your area.
70 cm (420 MHz)*
E,A,G,T
420.0 450.0 MHz
33 cm (902 MHz)*
E,A,G,T
902.0 928.0 MHz
23 cm (1240 MHz)*
1240 1300 MHz
E,A,G,T
N (5 W)
1270 1295
All licensees except Novices are authorized all modes on the following frequencies:
2300-2310 MHz 10.0-10.5 GHz ‡ 122.25-123.0 GHz
2390-2450 MHz 24.0-24.25 GHz 134-141 GHz
3300-3500 MHz 47.0-47.2 GHz 241-250 GHz
5650-5925 MHz 76.0-81.0 GHz All above 275 GHz
‡ No pulse emissions
KEY
Note:
CW operation is permitted throughout all amateur bands.
MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.
Test transmissions are authorized above 51 MHz, except for 219-220 MHz
= RTTY and data
= phone and image
= CW only
= SSB phone
= USB phone, CW, RTTY, and data
= Fixed digital message forwarding systems only
E = Amateur Extra
A = Advanced
G = General
T = Technician
N = Novice
See ARRLWeb at www.arrl.org for detailed band plans.
ARRL
We're At Your Service
ARRL Headquarters:
860-594-0200 (Fax 860-594-0259)
email: hq@arrl.org
Publication Orders:
www.arrl.org/shop
Toll-Free 1-888-277-5289 (860-594-0355)
email: orders@arrl.org
Membership/Circulation Desk:
www.arrl.org/membership
Toll-Free 1-888-277-5289 (860-594-0338)
email: membership@arrl.org
Getting Started in Amateur Radio:
Toll-Free 1-800-326-3942 (860-594-0355)
email: newham@arrl.org
Exams: 860-594-0300 email: vec@arrl.org
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The new chart includes the newly adopted 2200-meter and 630-meter bands. Like many of us do, it's a good idea to print this chart and tape it to your wall near your rig. The direct link to the ARRL page that presents the chart is http://www.arrl.org/graphical-frequency-allocations

P.S. Due to popular demand, we're re-printing this page, the same as last month.

Hot Tips

Good info for the new ham, and old stuff to refresh your memory

Should you get amateur radio license plates?

Not to be confused with a *vanity call sign*, an ***amateur radio license plate*** is a personalized vehicle license plate that has your current amateur radio call sign printed on it, whether that call sign is a vanity or not

Pros — reasons for getting amateur radio license plates:

- Fun way for traveling hams to recognize you
- All the cool kids are getting them
- In an emergency or special event, can help officials recognize you as part of the solution (some will actually allow you access to incident areas where they might refuse others)
- Can give you a greater sense of responsible driving and public example (you might be surprised to find just how true this is)
- Makes it easier to explain why you're parked on a dark hill with a carload of electronics
- Shows just how much of a geek you really are

Cons — reasons why you might ***not*** want to get amateur radio license plates:

- Alerts thieves that you have ham radio equipment in your vehicle
- Stalkers can track your plates to your home address easily
- It costs money ($20 one-time fee)
- You might want to change your call sign in the future, and plates seem rather permanent
- Shows just how much of a geek you really are

How do I order mine?

The steps for how to get Utah amateur plates are listed on Noji's website.

Eddy-kit

Radio etiquette reminders

You hear another ham on the air, and he makes a mistake, like saying "my 20" or leaving *WIRES* turned on or forgetting to set his repeater offset. It's a very minor offense, but you cringe, and feel like it's your duty to jump on him and make sure he knows the law of the land.

May we suggest three principles to guide our attitudes as we go about trying to set the world straight? 1) ***Refrain from offering unwanted advice***. New hams need your help, not your lecture. Sometimes it's obvious, like the case of the repeater offset, that he needs help. Gently let him know that he's not "in the repeater" because his offset might not be set. No need to say more than that. 2) ***Refrain from criticizing***. There is no place on the airwaves for comments that put down other hams. Use good judgment to distinguish the fine line between help and criticism. "Your signal is horrible" might be helpful, but "he doesn't know what he's doing" is probably not. 3) Lastly, but most importantly, ***be kind***. Let kindness to others guide your overall attitude on the air, and the first two principles will come naturally.

DIY

Worthwhile projects you can build on your own

Pressurized Antenna Launcher

One of the most important parameters when working with HF (high-frequency) antennas is their transmission patterns, which are determined by factors like antenna type, element shape, and height above ground. But if we don't have the luxury of mounting our antennas using buildings or masts to get the height we need, we might have to resort to slinging paracord over nearby trees.

A pressurized (pneumatic) antenna launcher, similar to a T-shirt air cannon, could help with that. An antenna launcher actually launches a small projectile (not your antenna!) that's attached to a length of fishing line, and the one shown here can be manually pressurized by a tire pump. (It can easily be modified for use with a CO_2 cartridge.) There are several good designs available, and this article features one made by Jay Rusgrove, W1VD. While simple in operation, this project takes a little more time and patience than others we've featured.

Parts list:

- √ 3″ PVC end cap
- √ 4″ of 3″ PVC pipe
- √ 1-1/2″ of 3″ PVC reducing "Y"
- √ 3″ of 3″ PVC pipe
- √ 3″ to 1-1/2″ PVC reducer
- √ 1-1/2″ x 1″ PVC bushing
- √ 1-1/2″ of 1″ PVC pipe
- √ 1″ PVC male adapter (slip to MPT)
- √ 1-1/2″ PVC slip cap
- √ 2-1/2″ of 3/4″ PVC pipe
- √ Orbit 57461 1″ sprinkler valve (NPT both ends)
- √ Victor 04100-8 tire valve
- √ McMaster 3847K72 pressure gauge 0-100 psi
- √ Mouser Mountain 10TC262 momentary switch
- √ Zebco 202 fishing reel (or equivalent)
- √ 24″ of 1-1/4″ PVC pipe
- √ 6″ of 1-1/2″ PVC pipe
- √ 1-1/4″ slip to 1″ MPT PVC male reducer
- √ 1-1/4″ PVC coupling
- √ 2 of 3/4″ PVC slip cap

Where to get the parts

You can pick up PVC pipe and fittings from Home Depot and/or Lowe's, as well as most good-sized plumbing stores, like Standard Plumbing Supply. You can purchase the sprinkler valve online or from Home Depot, and the fishing reel from Walmart. Auto Zone and O'Reilly's both carry the tire valve and pressure gauge. Purchase the switch online.

Building it

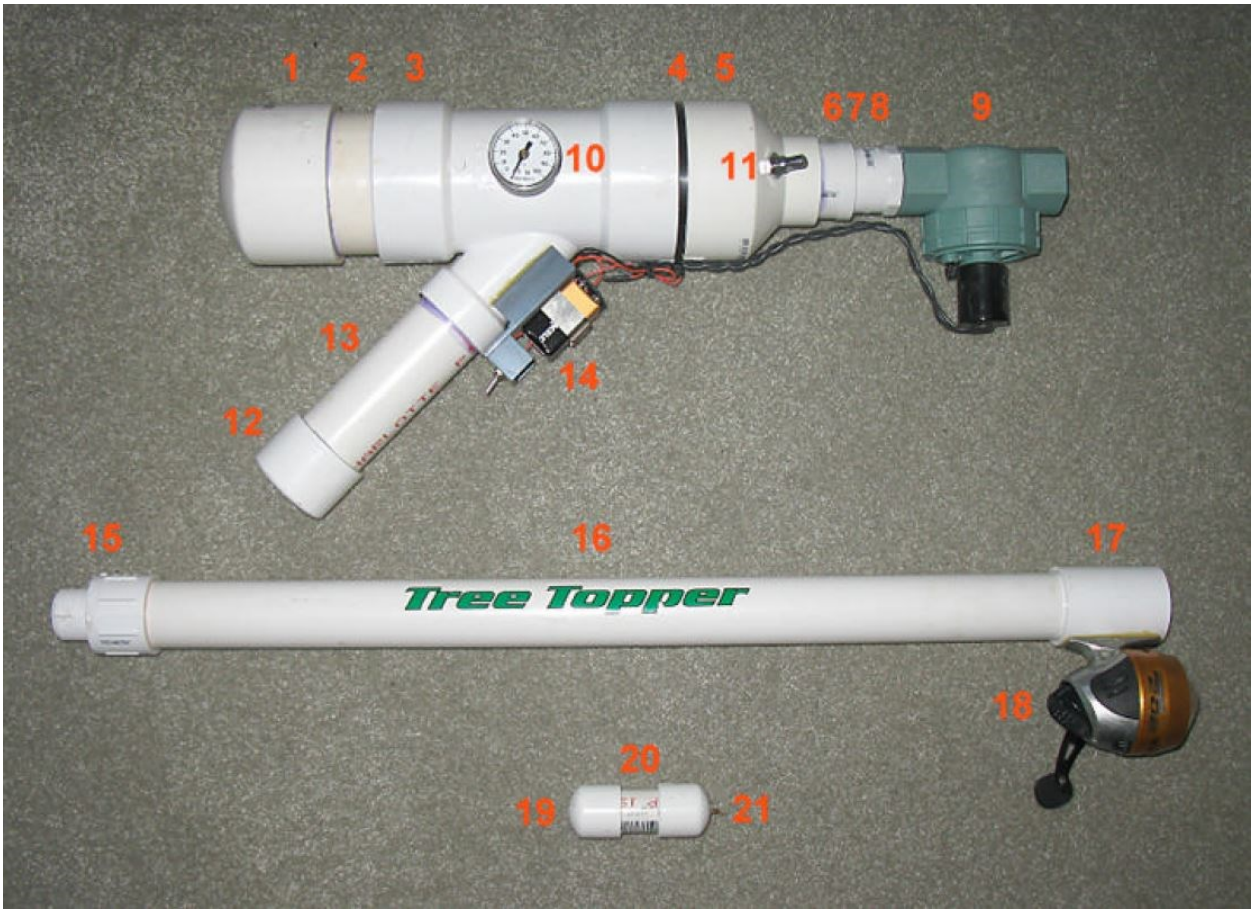
Drill and tap the "Y" fitting for the air pressure gauge. Drill the 3″ x 1-1/2″ reducer to accept the metal tire valve before assembly. The order of PVC assembly is not particularly critical. Start at the back end of a unit and work forward. The trigger/safety/battery assembly is the most difficult part of construction. Machined it out a PVC channel, and epoxy it to the handle. Other construction techniques could work equally well. The momentary action toggle switch acts as the trigger, closing the circuit to two 9-volt batteries to open the valve. You can place a miniature rocker switch In series with the momentary toggle switch as a safety.

DIY, continued

Pressurized Antenna Launcher

Epoxy the fishing reel to the 1-1/4″ coupling. Contour the bottom of the fishing reel mount to approximately the same radius as the coupling. You can do this with a drum sander or alternatively, a piece of sandpaper wrapped around the coupling.

Glue one end cap of the projectile 3/4″ PVC, but leave the other end unglued, to allow you to add weight to it, as needed. Drill two small holes in the end of the cemented on cap, then push a cut off paper clip through the holes, with the wires simply bent over inside (best to do this before gluing the cap). This forms a 'low profile' loop on the outside of the projectile. Tie one end of the fishing line to a standard fishing barrel swivel, then attach it to the loop on the projectile.



Legal, BTW

The Bureau of Alcohol, Tobacco and Firearms has determined that pneumatic launchers are not firearms. Check your local regulations that affect the use of such devices. A letter from the BATF on this subject can be found at http://www.spudtech.com/content.asp?id=13

DIY, continued

Pressurized Antenna Launcher

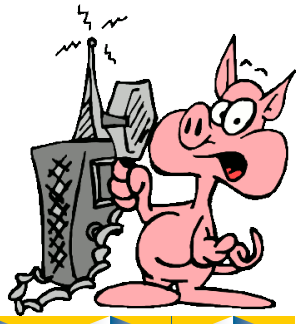
Pressurize the storage chamber using a bicycle pump or 12 VDC auto tire pump, compressor, or portable air tank. At this point you can make a test shot by not connecting the fishing line. The difference in range/height with and without the fishing line in tow is negligible. Make sure the down range is clear. When you're ready to make the actual shot, press the spinning reel line release button and attach the projectile to the fishing line. Insert the projectile into the barrel with the fishing line connection toward the open end of the barrel. Aim the launcher by sighting down the barrel and operating the trigger switch. Estimate the total *range* (distance) to where you would like the projectile to land, and the *height* of the tree:

Approximate Range/Height vs. Elevation Angle

	45°	50°	60°	70°	80°
25 psi	172/43	168/51	150/65	110/76	58/83
30 psi	207/52	202/61	180/78	132/91	70/100
35 psi	221/55	217/65	192/83	141/97	75/107
40 psi	241/60	236/71	210/90	154/106	82/117
45 psi	247/62	242/73	215/93	158/109	84/120
50 psi	259/65	254/76	225/97	166/114	88/126

Side of Bacon

A little ham humor



Ham history trivia quiz

Taken from ARRL (see http://www.arrl.org/news/amateur-radio-quiz-ham-horizons for all the questions and answers)

1. What amateur-invented AM mode is often heard around 14.230 MHz?

a. Fast-scan TV
b. Wide-band FM
c. Slow-scan TV
d. Working split

4. What type of preamplifier, invented by hams, does not include a transistor, tube or other active amplifying device?

a. parametric
b. supercooled
c. negative-feedback
d. servo

5. Relegated to these in the early days of radio, hams found them to be prime radio real estate.

a. Very Low Frequencies
b. Sub-bands
c. Quiet zones
d. Short waves

6. VHF enthusiasts discovered and documented what unusual propagation mode?

a. Transequatorial skip
b. D-layer absorption
c. Tropospheric propagation
d. Continuous wave

7. Grote Reber (ex-W9GFZ) pioneered what scientific discipline?

a. Radio photography
b. Telekinesis
c. Radio astronomy
d. Quantum mechanics

8. What communication mode pioneered by amateurs has been revolutionized by a Nobel laureate ham's software?

a. Semaphore
b. Long-path
c. Chordal hops
d. Moonbounce

10. Bob Dennison, W0DX, led the "Gone Waki" team in the first example of what popular activity?

a. Field Day
b. Transatlantic DX QSOs
c. DXCC
d. DXpeditions

Bonus Question: Which amateur-invented protocol lies at the heart of many commercial location tracking systems?

Answers

1. c -- Invented by Copthorne Macdonald, VE1BFL, in the early 1960s, SSTV is even incorporated in some handheld VHF radios

4. a -- Parametric amplifiers use the nonlinearity of diode junctions to amplify signals

5. d -- The infamous "200 meters and down" region was supposed to be an exile for amateurs, but it turned out to be the opposite!

6. a -- TEP was not considered possible at VHF until amateurs found it

7. c -- Grote combined a love of astronomy and Amateur Radio

8. d -- Joe Taylor, K1JT, wrote the WSJT software, which has brought EME (Earth-Moon-Earth) within reach of amateurs

10. d -- Bob's 1948 "Gon-Waki" operation as VP7NG (Bahamas) was the first DXpedition

Bonus Answer: The Automatic Packet Reporting System (APRS) was invented by Bob Bruninga, WB4APR

Please send your good (or bad) humor material to ***uvarcshack@gmail.com***

For Your Insight

Information you could use

Club meeting format

Here's the usual agenda for club meetings, at the Orem City Council Chamber Room, 56 N State St:

Talk-in frequency on the club repeaters

6:30 pm : Eyeball QSO

socialize / put faces with call signs

radio programmers available to help you

6:45 pm : Call the meeting to order

meeting lineup (agenda)

announcements / nets / awards / calendar

7:00 pm : Door prizes

7:15 pm : Discussion / breakout session

discussions usually involve everybody

breakouts split into separate groups

7:50 pm : Dismiss and tear-down

8:00 pm : *Club QSY* to Lucy's Pizzeria

Something you'd like to see at the meetings?

Monthly meeting help

We're grateful for the volunteers who help with various tasks that make our club night just that much more friendly and useful to everybody. Monthly we need help with

programming radios (thanks, Loren!)

taking photos or videos during the meeting

operating the talk-in radio

setting up tables and chairs (thanks, Heath!)

Lynx

Websites for your education and leisure

For the New Ham Radio Operator

Ham Radio Nets

DX Summit and DX Maps

The Myth of EMP

Recommended Study Method (for exams)

Give us your input at uvarcshack@gmail.com

Questions of the Month

Test your knowledge (answers next page)

G4CØ3 : What sound is heard from an audio device or telephone if there is interference from a nearby single sideband phone transmitter?

A. A steady hum whenever the transmitter is on the air
B. On-and-off humming or clicking
C. Distorted speech
D. Clearly audible speech

E4DØ3 : How can intermodulation interference between two repeaters occur?

A. When the repeaters are in close proximity and the signals cause feedback in the final amplifier of one or both transmitters
B. When the repeaters are in close proximity and the signals mix in the final amplifier of one or both transmitters
C. When the signals from the transmitters are reflected out of phase from airplanes passing overhead
D. When the signals from the transmitters are reflected in phase from airplanes passing overhead

Calendar

What's happening
(times are Mountain Time)

Utah County Ham Exam Sessions

BYU J. Reuben Clark Law School building

Sign up at HamStudy.org/sessions

Wed Nov 15, 7:00 to 8:45 pm
Sat Nov 18, 2:30 to 5:00 pm
Sat Dec 16, 2:30 to 5:00 pm
Wed Dec 20, 7:00 to 8:45 pm
Wed Jan 17, 7:00 to 8:45 pm
Sat Jan 20, 2:30 to 5:00 pm
Sat Feb 17, 2:30 to 5:00 pm
Wed Feb 21, 7:00 to 8:45 pm

Provo One-day Technician Courses

Third Saturday Monthly at 8:00 am

2018 Orem Ham Radio Courses

Technician : Jan 23, 30, Feb 6, 13
Extra : Mar 13, 20, 27, Apr 3, 10
Technician : May 22, 29, June 5, 12
General : July 31, Aug 7, 14, 21
Technician : Sept 18, 25, Oct 2, 9

Club Meeting Calendar (6:30 pm)

Orem Council Chambers, 56 N State St

November 2	December 7 *
January 4	February 1
March 1	April 5
May 3	June 7

** Christmas potluck actually at 93 N 400 E*

Regular Nets

RACES Net, Thu Dec 21 8:00 pm, 147.12
Jackson Hole Net, Mon 8:00 pm, 146.76
UVARC Ladies' Net, Tue 7:00 pm, 146.78
UARC 76'ers, Wed 7:00 pm, 146.76
UVARC Youth Net, Thu 6:30 pm, 146.78
UVARC New Ham Net, Thu 7:00 pm, 146.78
CERT Net, 2nd & 4th Thu 8:00 pm, 146.78
Utah County 6 meters, Fri 8:00 pm, 50.14
6-Pack Net, Fri 9:00 pm, 50.15
Family History Net, Sat 8:00 pm, 146.78
See a larger list of nets at noji.com/nets

Upcoming Contests

***KYQP* (Kentucky QSO Party)**
7 am to 7 pm Sat Nov 11

ARRL November Sweepstakes
2 pm Sat Nov 18 to 8 pm Sun Nov 19
(This is one of the four big ones annually)

***ARRL 10-meter Contest* (SSB & CW)**
5 pm Fri Dec 8 to 5 pm Sun Dec 10

***RAC Winter* (Royal Amateurs of Canada)**
5 pm Fri Dec 29 to 5 pm Sat Dec 30

***NAQP* (North American QSO Party)**
11 am to 11 pm Sun Jan 20

Answers to the Questions of the Month

G4CØ3 : **C** (Distorted speech)

E4DØ3 : **B** (When the repeaters are in close proximity and the signals mix in the final amplifier of one or both transmitters)

Where everybody knows your call sign

Utah Valley Amateur Radio Club
Orem, Utah, USA

K7UVA
Phone/Text: 801-368-1865
Email: k7uva@arrl.net

Repeaters: 146.780-, 100.0
448.200-, 100.0 224.560-, 100.0

Newsletter input?
Email uvarcshack@gmail.com
Need help?
Email uvarcelmer@gmail.com

We're on the web!
uvarc.club

We are the *Utah Valley Amateur Radio Club*, a 501(c)(3) non-profit (EIN 81-360-6416) Utah corporation that was organized in an obscure Orem fire station on 02-05-2016 to provide amateur radio hobbyists in Utah County and surrounding areas a way to gather and discuss all things ham. Our primary purposes are to provide a local amateur radio resource, help new hams in their new-found adventures, and to give more experienced hams a reason to share their wealth of knowledge and wisdom in a friendly atmosphere of fellowship. We're an ARRL Affiliate and work in cooperation with the Utah VHF Society, but are not subsidiary to them, to UARC, the 76'ers, UCARES, RACES, the SCA-Team, or any other organization, although many of our members might also belong to the same.

This alleged newsletter is published every so often by the Utah Valley Amateur Radio Club, and its purpose is to convey the tone and temperament of the club, to inform and entertain its members, and to entice the rest. To join, go to www.facebook.com/groups/uvarc/ and request membership. For more information about our club or about amateur (ham) radio in general, please email or text or call us.

Our fearless leadership

Presidency

President..... Noji Ratzlaff
Vice President..... Chad Buttars
Secretary.....Caryn Alarcon
Activities..... Jeff McGrath
Technology.....Trevor Holyoak

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Jeremy Giovannoni, K7TEH
Brad Kirk, AF7FP
Alma Perry, W1ZGY

Club Sponsor

Heath Stevenson
Orem City Emergency Manager

73

T4A04 Where must a filter be installed to reduce harmonic emissions from your station?
Between the transmitter and the antenna